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EXAMINER

BARTH, VINCENT P

ART UNIT PAPER NUMBER

2877

DATE MAILED: 03 28 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937.480

Applicant(s)

MATSUNAGA ET AL.

Examiner

Vincent P. Barth

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION

- Extensions of time may be available under the provisions of 37 CFR 1.136(a) and 1.136(b) which have been considered.
- after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply which is filed within that shorter period will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will automatically be set at SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 61-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Referring to Claim 61, the language in which the measurement object range corresponding to a surface forming pair is moved with the reference surface is not clear. MPEP §2173.02 states that, "If the scope of the invention sought to be patented cannot be determined from the language of the claims with a reasonable degree of certainty, a rejection of the claims under 35 U.S.C. 112, second paragraph is appropriate.", citing *In re Wiggins*, 488 F.2d 538, 179 USPQ 421 (CCPA 1973). However, the claims have been discussed below as each may best be understood. Similar language in Claim 63 presents the same difficulty. Moreover, the fourth paragraph of 35 U.S.C. §112 provides that, "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers". Accordingly, Claims 62-65 inherit the §112 second paragraph rejection of Claim 61, and are therefore rejected as well. However, said claims have also been discussed below, as the each may best be understood.

Claim Rejections - 35 USC § 103

4 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5 Claim 1-15, 46, 61-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshii, et al., U.S. Patent No. 5,969,820 (19 Oct., 1999), in view of Dong, U.S. Patent No. 5,923,427 (13 Jul., 1999).

6 Referring to Claim 1, Yoshii discloses a system for position detection in which a line beam 5a1 is created by passing a light source 5a through a slit 5c (Fig. 5 and col. 5, lns. 18-20), and in which a two dimensional imaging device such as a CCD 6b detects the reflected light (col. 5, lns. 34-39). Such light may be incident at a variety of angles, such as oblique angles (col. 3, ln. 63). Yoshii discloses a displacement measurement means such a position sensing device to detect the position of the light (col. 5, lns. 35-39). Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Yoshii does not explicitly disclose a range determining means, although such is arguably implied in the reference. Nevertheless, Dong discloses using a position sensing detector in conjunction with a range finding element (col. 5, lns. 58-65). Yoshii and Dong are analogous art, since they are from a similar problem solving area, in that each involves position measurement. See Medtronic, Inc. v. Cardiac Pacemakers, 721 F.2d 1563, 1572-1573, 220 USPQ 97, 103-104 (Fed. Cir., 1983). The motivation for

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combining the reference would have been to incorporate the range finding element and position sensing combination of Dong with the position sensing device as disclosed in Yoshii.

Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit.

7. Referring to Claims 2-4, as discussed above, the combination of Yoshii and Dong combining the range finding feature with the position sensing device determines the range to the substrate surface. As discussed above, Yoshii discloses that such element may be set at a variety of angles with respect to the substrate surface such as oblique angles (col. 3, ln. 63).

Accordingly, the position and/or length of the substrate can be determined perpendicular to the direction of displacement, or in the direction of displacement, as well as any other direction as desired.

8. Referring to Claims 5 and 14, Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Moreover, Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4, and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Accordingly, the configuration in the instant claim would have been obvious to those skilled in the art at the time of the invention.

9. Referring to Claim 6, Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Moreover, Yoshii discloses an image comparator means for analyzing the images output from the CCD (col. 7, lns. 48-50). Therefore, configuring the

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system disclosed in Yoshii to analyze the coordinate image data provisionally in one step and then comparing such measurements with a counterpart in the image, as in the instant claim, is a non-limiting statement of intended use, which does not distinguish the invention over the prior art. Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. See MPEP§2114, citing *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device *is*, not what a device *does*."

Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). Accordingly, the configuration in the instant claim would have been obvious to those skilled in the art at the time of the invention.

10. Referring to Claims 7, 9, 11 and 13, Yoshii discloses a signal processing circuit 220 (see Fig. 15), and a CCD imaging device 66b (Fig. 5). Moreover, it has been known that signal processing elements are often configured to edit images once captured from devices such as CCD cameras. Accordingly, the image editing means may be said to be either inherent or implied in the disclosure of Yoshii. See MPEP §2112. In the alternative, if such element were not deemed inherent or implied, the addition image editing software to said system would have been commonly known in the art. See MPEP §2144.03.

11. Referring to Claims 8 and 10, Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4; and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Moreover, Yoshii discloses that the image may correspond to a waveform (Fig. 12 and col. 7, lns. 48-50).

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12 Referring to Claim 12, Yoshii discloses that the boundaries of the substrate may be determined by analyzing the signal from the CCD by means of the height information along the z-axis (see Fig. 17).

13 Referring to Claim 15, Yoshii discloses a signal processing circuit 220 (see Fig. 15), but without explicitly illustrating the display, or that any such display would use a particular user interface. However, inclusion of a display for such purpose would have been obvious to those skilled in the art at the time of the invention based on the ubiquitous nature of such features, and the generally known developments state of the art in image analysis. See *In re Raynes*, 28 USPQ at 1632, and MPEP §2144.03, in which the court held the computing displays are ubiquitous for output of graphical information. Moreover, it is fair to say that among the user interfaces in use at the time of application, the GUI interface has been the most common.

14 Referring to Claim 46, Yoshii discloses a system for position detection in which a line beam 5a1 is created by passing a light source 5a through a slit 5c (Fig. 5 and col. 5, lns. 18-20), and in which a two dimensional imaging device such as a CCD 6b detects the reflected light (col. 5, lns. 34-39). Such light may be incident at a variety of angles, such as oblique angles (col. 3, ln. 63). Yoshii discloses a displacement measurement means such a position sensing device to detect the position of the light (col. 5, lns. 35-39). Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Yoshii does not explicitly disclose a range determining means, although such is arguably implied in the reference. Nevertheless, Dong discloses using a position sensing detector in conjunction with a range finding element (col. 5, lns. 58-65). Yoshii and Dong are analogous art, since they are from a similar problem solving

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area, in that each involves position measurement. See Medtronic, Inc. v. Cardiac Pacemakers, 721 F.2d 1563, 1572-1573, 220 USPQ 97, 103-104 (Fed. Cir., 1983). The motivation for combining the reference would have been to incorporate the range finding element and position sensing combination of Dong with the position sensing device as disclosed in Yoshii.

Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit.

15. Referring to Claim 60, Yoshii discloses a system for position detection in which a line beam 5a1 is created by passing a light source 5a through a slit 5c (Fig. 5 and col. 5, lns. 18-20), and in which a two dimensional imaging device such as a CCD 6b detects the reflected light (col. 5, lns. 34-39). Such light may be incident at a variety of angles, such as oblique angles (col. 3, ln. 63). Yoshii discloses a displacement measurement means such a position sensing device to detect the position of the light (col. 5, lns. 35-39). Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Yoshii does not explicitly disclose a range determining means, although such is arguably implied in the reference. Nevertheless, Dong discloses using a position sensing detector in conjunction with a range finding element (col. 5, lns. 58-65). Yoshii and Dong are analogous art, since they are from a similar problem solving area, in that each involves position measurement. See Medtronic, Inc. v. Cardiac Pacemakers, 721 F.2d 1563, 1572-1573, 220 USPQ 97, 103-104 (Fed. Cir., 1983). The motivation for combining the reference would have been to incorporate the range finding element and position sensing combination of Dong with the position sensing device as disclosed in Yoshii.

Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit.

16. Referring to Claims 61-63 and 65, Yoshii discloses an image comparator means for analyzing the images output from the CCD (col. 7, lns. 48-50). Moreover, Dong discloses using a position sensing detector in conjunction with a range finding element (col. 5, lns. 58-65).

Thus, either element alone, or the combination of the range finder and comparator would be able to track the changes in displacement of the substrate. In addition, it has been well known to use the image data from a series of measurements to track the movement of substrates. See MPEP §2144.03

17. Referring to Claim 64, Yoshii discloses that the boundaries of the substrate may be determined by analyzing the signal from the CCD by means of the height information along the z-axis (see Fig. 17).

18. Claims 16-45 and 47-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshii, et al., U.S. Patent No. 5,969,820 (19 Oct., 1999), in view of Dong, U.S. Patent No. 5,923,427 (13 Jul., 1999), further in view of Nozaki, et al., U.S. Pat. No. 6,504,947 (7 Jan., 2003).

19. Referring to Claim 16, Yoshii discloses a system for position detection in which a line beam 5a1 is created by passing a light source 5a through a slit 5c (Fig. 5 and col. 5, lns. 18-20), and in which a two dimensional imaging device such as a CCD 6b detects the reflected light (col. 5, lns. 34-39). Such light may be incident at a variety of angles, such as oblique angles (col. 3, ln. 63). Yoshii discloses a displacement measurement means such a position sensing device to

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detect the position of the light (col. 5, lns. 35-39). Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Yoshii does not explicitly disclose a range determining means, although such is arguably implied in the reference. Nevertheless, Dong discloses using a position sensing detector in conjunction with a range finding element (col. 5, lns. 58-65). Yoshii and Dong are analogous art, since they are from a similar problem solving area, in that each involves position measurement. See Medtronic, Inc. v. Cardiac Pacemakers, 721 F.2d 1563, 1572-1573, 220 USPQ 97, 103-104 (Fed. Cir., 1983). The motivation for combining the reference would have been to incorporate the range finding element and position sensing combination of Dong with the position sensing device as disclosed in Yoshii. Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit. Neither Yoshii nor Dong explicitly discloses that the gradation value can be adjusted at various coordinate points. However, Nozaki discloses a system of wafers, including masked wafers, in which the gradation of the image can be adjusted (col. 4, ln. 67 to col. 5 ln. 1). Moreover, the gradation values of the image can be computed at each coordinate point (col. 6, lns. 64-67). Yoshii, Dong and Nozaki are analogous art, since they are from a similar problem solving area, in that each involves analyzing the image from a substrate. The motivation for combining the reference would have been to incorporate gradient adjustment on a coordinate basis. Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit.

20. Referring to Claim 17, Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4, and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Moreover, Nozaki involves the adjustment of gradation, and is also applied to masked images.

21. Referring to Claims 18 and 26, Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Moreover, Yoshii discloses an image comparator means for analyzing the images output from the CCD (col. 7, lns. 48-50). Therefore, configuring the system disclosed in Yoshii to analyze the coordinate image data provisionally in one step and then comparing such measurements with a counterpart in the image, as in the instant claim, is a non-limiting statement of intended use, which does not distinguish the invention over the prior art. Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. See the discussion above regarding MPEP§2114. Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4; and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Accordingly, the configuration in the instant claim would have been obvious to those skilled in the art at the time of the invention.

22. Referring to Claims 19, 21, 23, 25 and 27, Yoshii discloses a signal processing circuit 220 (see Fig. 15), and a CCD imaging device 66b (Fig. 5). Moreover, it has been known that signal processing elements are often configured to edit images once captured from devices such as CCD cameras. Accordingly, the image editing means may be said to be either inherent or implied in the disclosure of Yoshii. See MPEP §2112. In the alternative, if such element where

not deemed inherent or implied, the addition image editing software to said system would have been commonly known in the art. See MPEP §2144.03.

23. Referring to Claims 20 and 22, Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4; and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Moreover, Yoshii discloses that the image may correspond to a waveform (Fig. 12 and col. 7, lns. 48-50).

24. Referring to Claim 24, Yoshii discloses that the boundaries of the substrate may be determined by analyzing the signal from the CCD by means of the height information along the z-axis (see Fig. 17).

25. Referring to Claim 26, Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Moreover, Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4; and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Accordingly, the configuration in the instant claim would have been obvious to those skilled in the art at the time of the invention.

26. Referring to Claims 28 and 29, Yoshii discloses a signal processing circuit 220 (see Fig. 15), but without explicitly illustrating the display (i.e., a graphic diagram), or that any such display would use a particular user interface. However, inclusion of a display for such purpose would have been obvious to those skilled in the art at the time of the invention based on the ubiquitous nature of such features, and the generally known developments state of the art in image analysis. See *In re Raynes*, 28 USPQ at 1632, and MPEP §2144.03, in which the court

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held the computing displays are ubiquitous for output of graphical information. Moreover, it is fair to say that among the user interfaces in use at the time of application, the GUI interface has been the most common.

27. Referring to Claims 30 and 31, Moreover, Yoshii discloses an image comparator means for analyzing the images output from the CCD (col. 7, lns. 48-50). Moreover, Dong discloses using a position sensing detector in conjunction with a range finding element (col. 5, lns. 58-65). Thus, either element alone, or the combination of the range finder and comparator would be able to track the changes in displacement of the substrate. In addition, it has been well known to use the image data from a series of measurements to track the movement of substrates. See MPEP §2144.03.

28. Referring to Claims 32 and 33, Yoshii discloses a system for position detection in which a line beam 5a1 is created by passing a light source 5a through a slit 5c (Fig. 5 and col. 5, lns. 18-20), and in which a two dimensional imaging device such as a CCD 6b detects the reflected light (col. 5, lns. 34-39). Such light may be incident at a variety of angles, such as oblique angles (col. 3, ln. 63). Yoshii discloses a displacement measurement means such a position sensing device to detect the position of the light (col. 5, lns. 35-39). Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Yoshii does not explicitly disclose a range determining means, although such is arguably implied in the reference. Nevertheless, Dong discloses using a position sensing detector in conjunction with a range finding element (col. 5, lns. 58-65). Yoshii and Dong are analogous art, since they are from a similar problem solving area, in that each involves position measurement. See Medtronic, Inc. v. Cardiac Pacemakers,

721 F.2d 1563, 1572-1573, 220 USPQ 97, 103-104 (Fed. Cir., 1983). The motivation for combining the reference would have been to incorporate the range finding element and position sensing combination of Dong with the position sensing device as disclosed in Yoshii.

Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit. Neither Yoshii nor Dong explicitly discloses that the gradation value can be adjusted at various coordinate points. However, Nozaki discloses a system of wafers, including masked wafers, in which the gradation of the image can be adjusted (col. 4, ln. 67 to col. 5 ln. 1). Moreover, the gradation values of the image can be computed at each coordinate point (col. 6, lns. 64-67). Yoshii, Dong and Nozaki are analogous art, since they are from a similar problem solving area, in that each involves analyzing the image from a substrate. The motivation for combining the reference would have been to incorporate gradient adjustment on a coordinate basis. Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit.

29. Referring to Claims 34 and 42, Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Moreover, Yoshii discloses an image comparator means for analyzing the images output from the CCD (col. 7, lns. 48-50). Therefore, configuring the system disclosed in Yoshii to analyze the coordinate image data provisionally in one step and then comparing such measurements with a counterpart in the image, as in the instant claim, is a non-limiting statement of intended use, which does not distinguish the invention over the prior art. Claims directed to apparatus must be distinguished from the prior art in terms of structure

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rather than function. See the discussion above regarding MPEP§2114. Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4, and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Accordingly, the configuration in the instant claim would have been obvious to those skilled in the art at the time of the invention.

30. Referring to Claims 35, 37, 39, 41 and 43, Yoshii discloses a signal processing circuit 220 (see Fig. 15), and a CCD imaging device 66b (Fig. 5). Moreover, it has been known that signal processing elements are often configured to edit images once captured from devices such as CCD cameras. Accordingly, the image editing means may be said to be either inherent or implied in the disclosure of Yoshii. See MPEP §2112. In the alternative, if such element were not deemed inherent or implied, the addition image editing software to said system would have been commonly known in the art. See MPEP §2144.03.

31. Referring to Claims 36 and 38, Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4, and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Moreover, Yoshii discloses that the image may correspond to a waveform (Fig. 12 and col. 7, lns. 48-50).

32. Referring to Claim 40, Yoshii discloses that the boundaries of the substrate may be determined by analyzing the signal from the CCD by means of the height information along the z-axis (see Fig. 17).

33. Referring to Claims 44 and 45, Yoshii discloses a signal processing circuit 220 (see Fig. 15), but without explicitly illustrating the display (i.e., a graphic diagram), or that any such display would use a particular user interface. However, inclusion of a display for such purpose

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would have been obvious to those skilled in the art at the time of the invention based on the ubiquitous nature of such features, and the generally known developments state of the art in image analysis. See *In re Raynes*, 28 USPQ at 1632, and MPEP §2144.03, in which the court held the computing displays are ubiquitous for output of graphical information. Moreover, it is fair to say that among the user interfaces in use at the time of application, the GUI interface has been the most common.

34. Referring to Claim 47, the combination of Yoshii or Dong contains all of the features disclosed, but does not explicitly disclose that the gradation value can be adjusted at various coordinate points. However, Nozaki discloses a system of wafers, including masked wafers, in which the gradation of the image can be adjusted (col. 4, ln. 67 to col. 5 ln. 1). Moreover, the gradation values of the image can be computed at each coordinate point (col. 6, lns. 64-67).

Yoshii, Dong and Nozaki are analogous art, since they are from a similar problem solving area, in that each involves analyzing the image from a substrate. The motivation for combining the reference would have been to incorporate gradient adjustment on a coordinate basis.

Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit.

35. Referring to Claim 48, Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Moreover, Yoshii discloses an image comparator means for analyzing the images output from the CCD (col. 7, lns. 48-50). Therefore, configuring the system disclosed in Yoshii to analyze the coordinate image data provisionally in one step and then comparing such measurements with a counterpart in the image, as in the instant claim, is a

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non-limiting statement of intended use, which does not distinguish the invention over the prior art. Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. See the discussion above regarding MPEP§2114. Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4, and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Accordingly, the configuration in the instant claim would have been obvious to those skilled in the art at the time of the invention.

36. Referring to Claims 49, 51, 53, 55 and 57, Yoshii discloses a signal processing circuit 220 (see Fig. 15), and a CCD imaging device 66b (Fig. 5). Moreover, it has been known that signal processing elements are often configured to edit images once captured from devices such as CCD cameras. Accordingly, the image editing means may be said to be either inherent or implied in the disclosure of Yoshii. See MPEP §2112. In the alternative, if such element were not deemed inherent or implied, the addition image editing software to said system would have been commonly known in the art. See MPEP §2144.03.

37. Referring to Claim 50 and 52, Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4; and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Moreover, Yoshii discloses that the image may correspond to a waveform (Fig. 12 and col. 7, lns. 48-50).

38. Referring to Claim 54, Yoshii discloses that the boundaries of the substrate may be determined by analyzing the signal from the CCD by means of the height information along the z-axis (see Fig. 17).

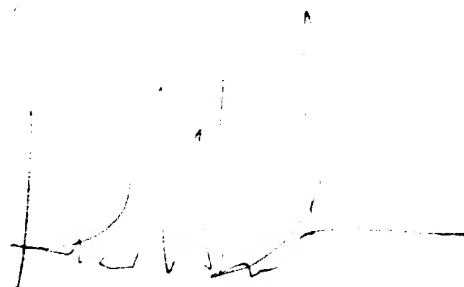
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39. Referring to Claim 56, Yoshii discloses that various coordinate information may be extracted from the signal, thus disclosing a coordinate determining means (see Figs. 16A, 16B, 17 and col. 10, lns. 23-36). Moreover, Yoshii discloses an image comparator means for analyzing the images output from the CCD (col. 7, lns. 48-50). Therefore, configuring the system disclosed in Yoshii to analyze the coordinate image data provisionally in one step and then comparing such measurements with a counterpart in the image, as in the instant claim, is a non-limiting statement of intended use, which does not distinguish the invention over the prior art. Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. See the discussion above regarding MPEP§2114. Yoshii discloses that the system may be used for inspecting photomasked substrates (col. 7, ln. 66 to col. 8, ln. 4; and col. 12, lns. 43-53). Thus, both images with and without masks are contemplated by the disclosure. Accordingly, the configuration in the instant claim would have been obvious to those skilled in the art at the time of the invention.

40. Referring to Claims 58 and 59, Yoshii discloses a signal processing circuit 220 (see Fig. 15), but without explicitly illustrating the display (i.e., a graphic diagram), or that any such display would use a particular user interface. However, inclusion of a display for such purpose would have been obvious to those skilled in the art at the time of the invention based on the ubiquitous nature of such features, and the generally known developments state of the art in image analysis. See *In re Raynes*, 28 USPQ at 1632, and MPEP §2144.03, in which the court held the computing displays are ubiquitous for output of graphical information. Moreover, it is fair to say that among the user interfaces in use at the time of application, the GUI interface has been the most common.

CONCLUSION

41. Applicants' Claims 1-65 are rejected based on the reasons set forth above.
42. Applicants' Claims 66 and 67 have been cancelled prior to examination.
43. Any inquiries concerning this communication from the examiner should be directed to Vincent P. Barth, whose telephone number is 703-605-0750, and who may be ordinarily reached from 9:00 a.m. to 5:30 p.m., Monday through Friday.
44. If attempts to reach the examiner prove unsuccessful, the examiner's supervisor is Frank G. Font, who may be reached at 703-308-4881.
45. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.



Richard A. Rosenberger
Primary Examiner